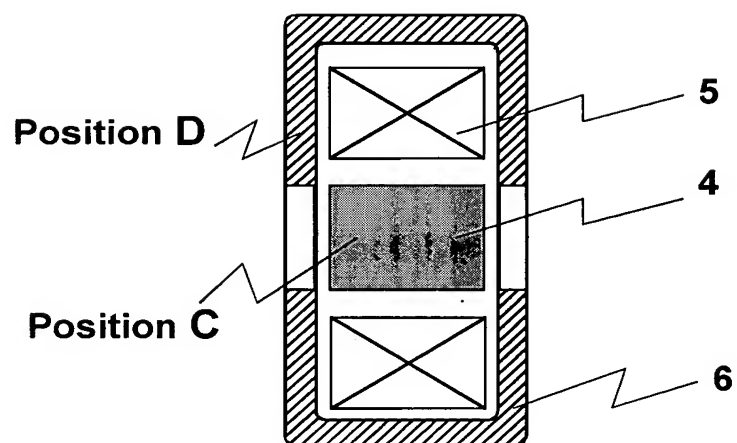
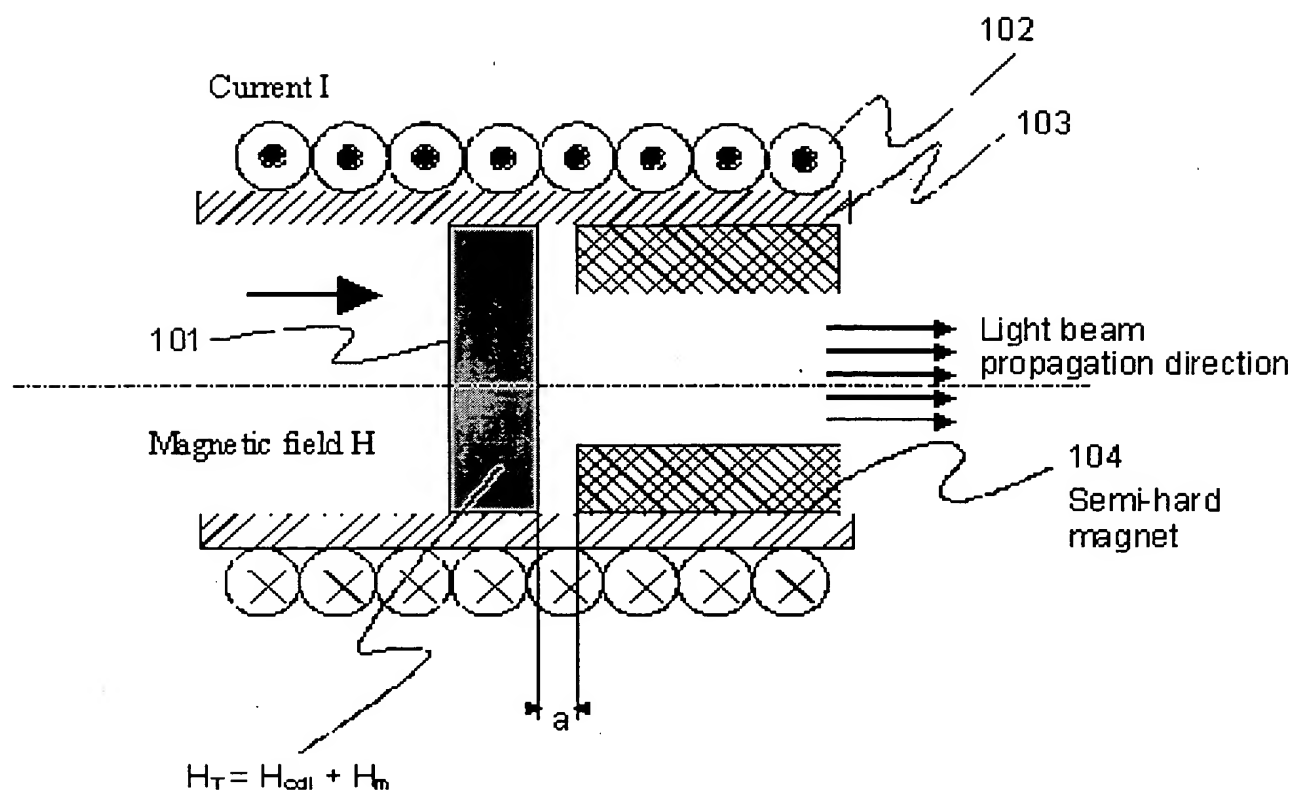


**Fig. 1**  
**PRIOR ART**



**Fig. 2**  
**PRIOR ART**



**Figure 3 Prior Art**

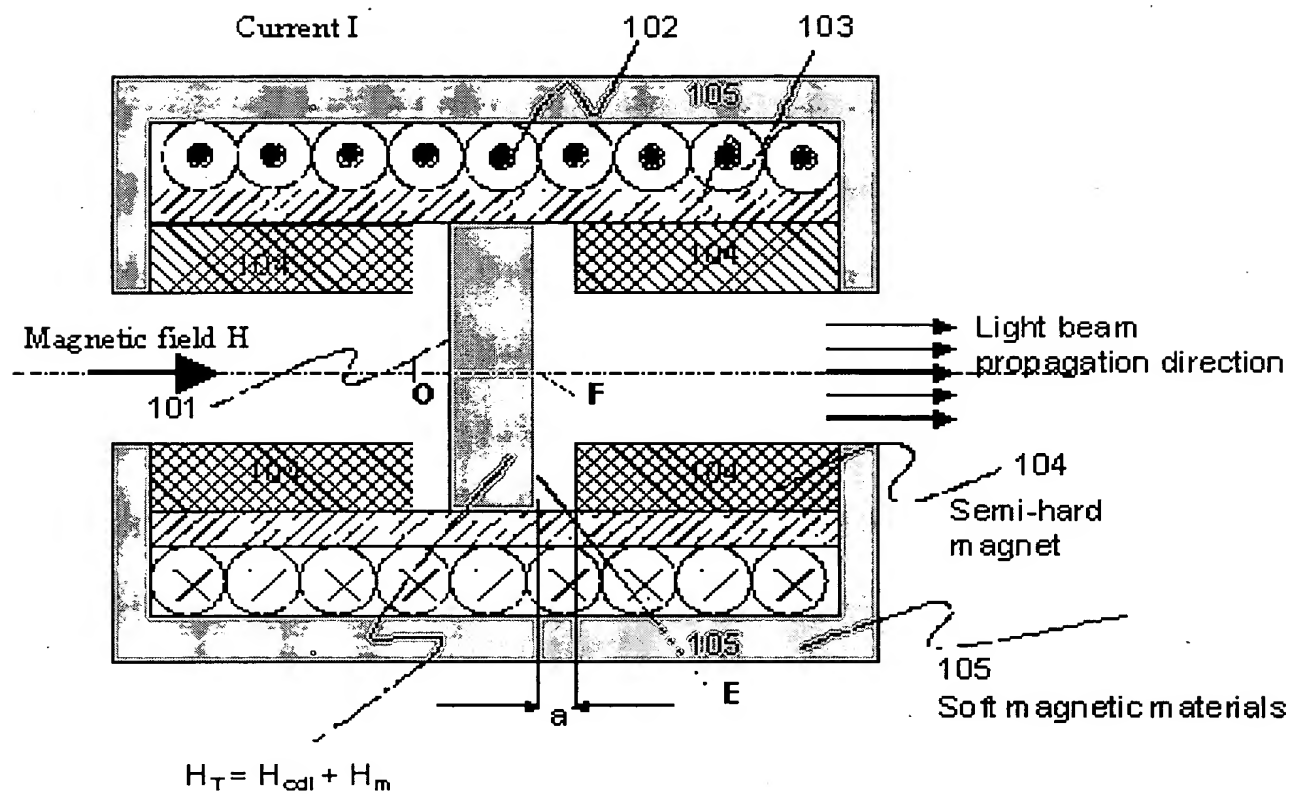


Figure 4 Prior Art

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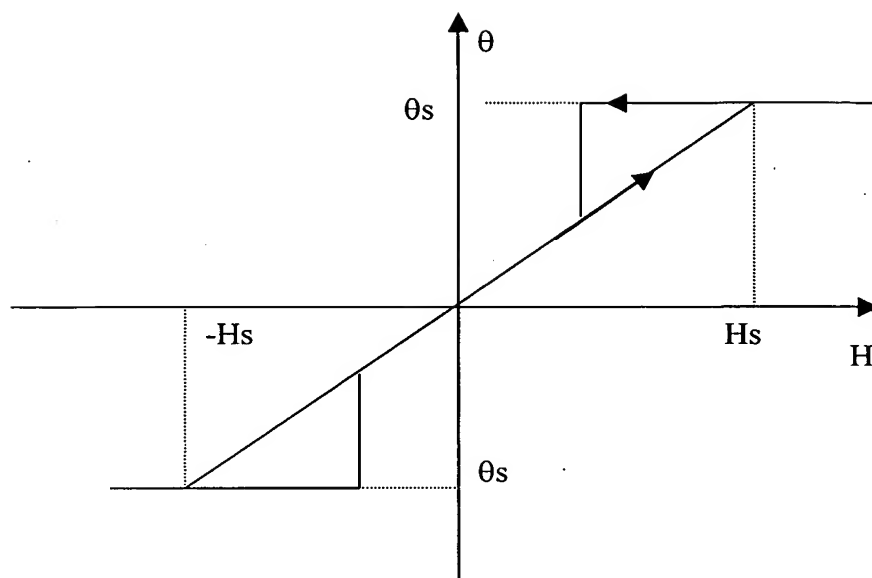


Figure 5. typical hysteresis curve for magneto-optic crystal

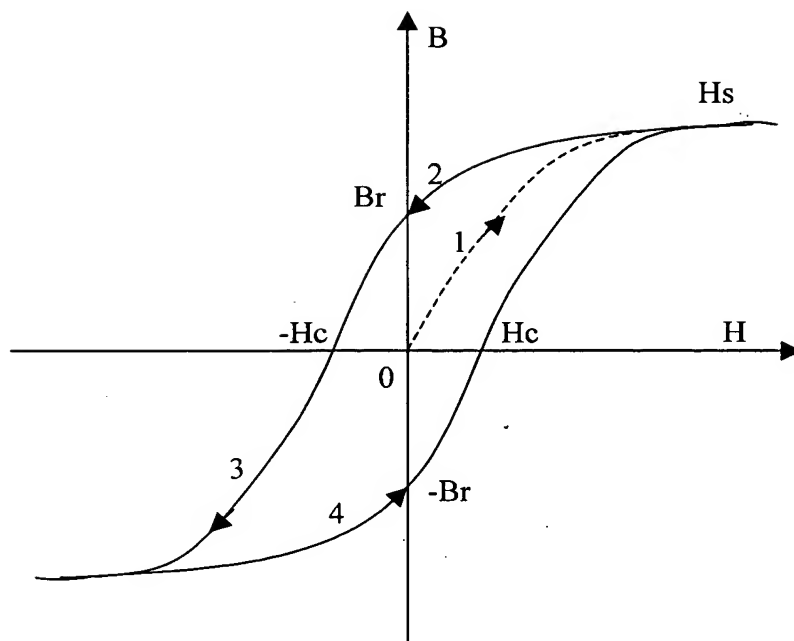
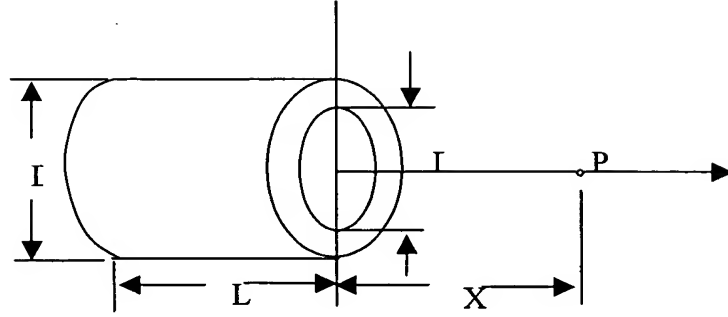


Figure 6. hysteresis curve of semi-hard material



$$H = \frac{Br}{2} \left[ (x + L) \left( \frac{1}{\sqrt{(x + L)^2 + \frac{D_o^2}{4}}} - \frac{1}{\sqrt{(x + L)^2 + \frac{D_i^2}{4}}} \right) - x \cdot \left( \frac{1}{\sqrt{x^2 + \frac{D_o^2}{4}}} - \frac{1}{\sqrt{x^2 + \frac{D_i^2}{4}}} \right) \right]$$

Figure 7. Magnetic field generated by a section of ring magnet

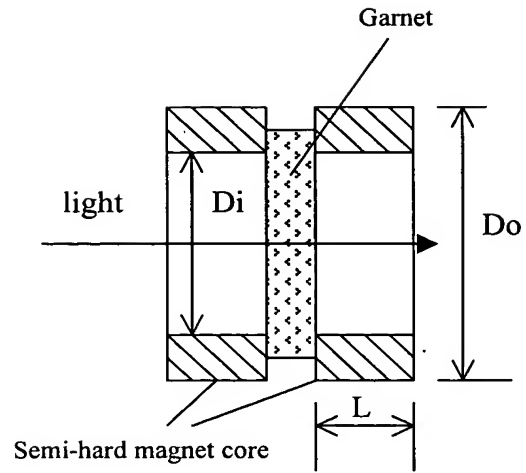


Figure 8. A typical Assembly of semi-hard magnets and magneto-optic crystal



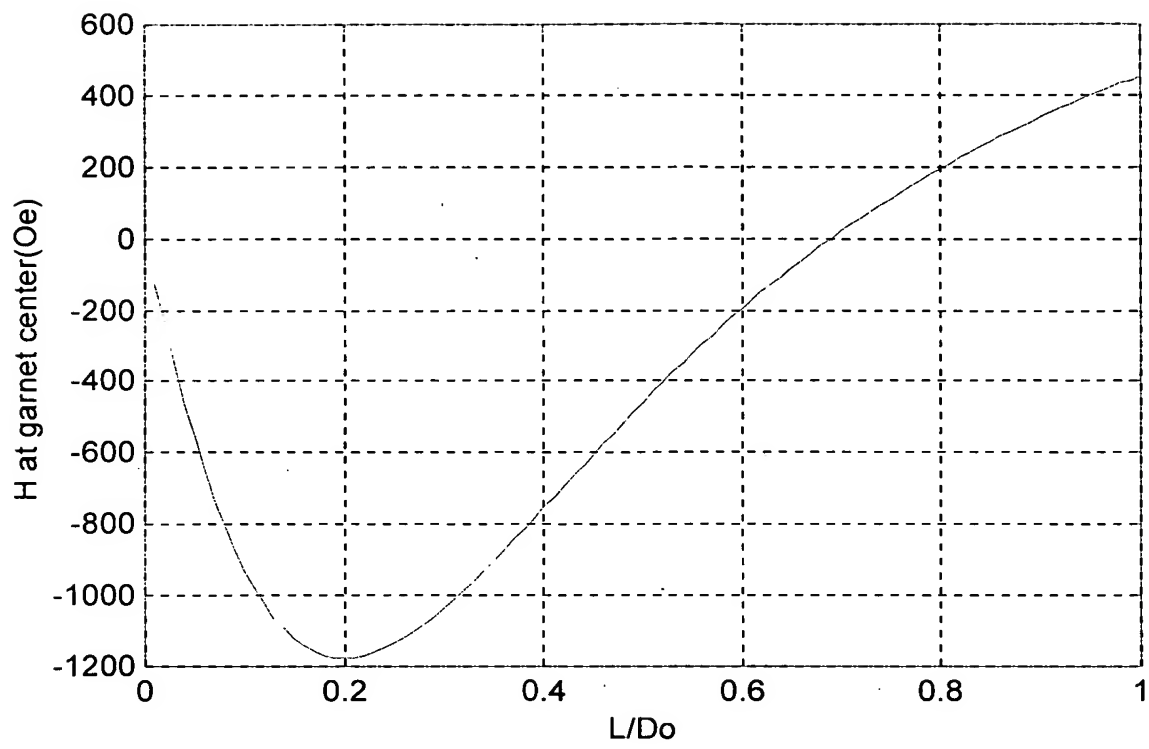


Figure 9. Magnetic field vs. the length of semi-hard magnet ( $D_i/D_o=0.625$ )

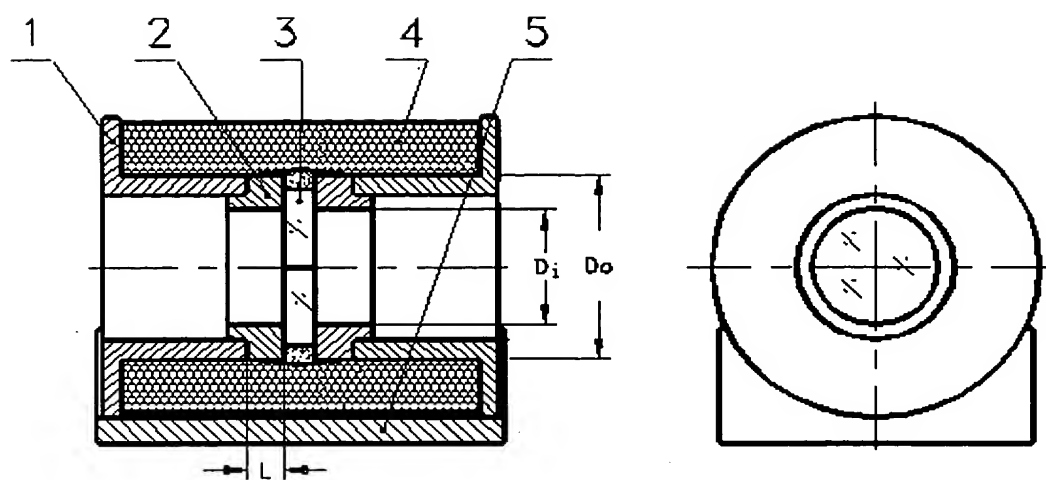


Figure 10. An embodiment of present invention

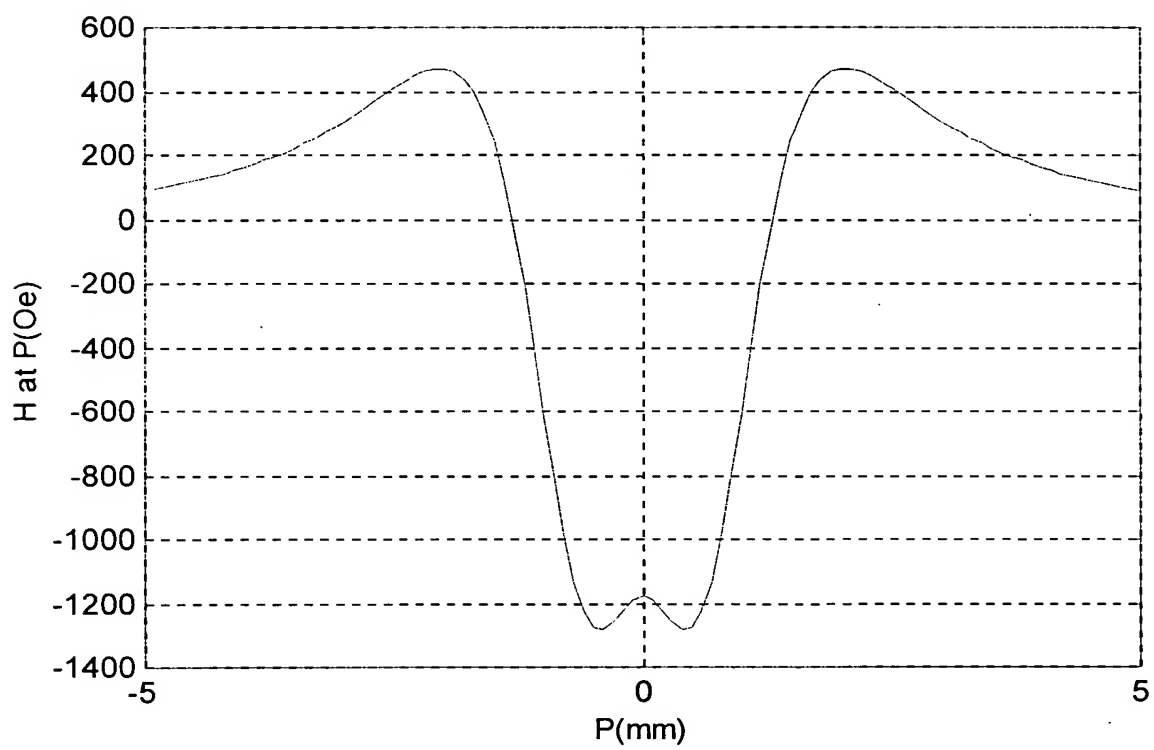


Figure 11. magnet field distribution for figure 10

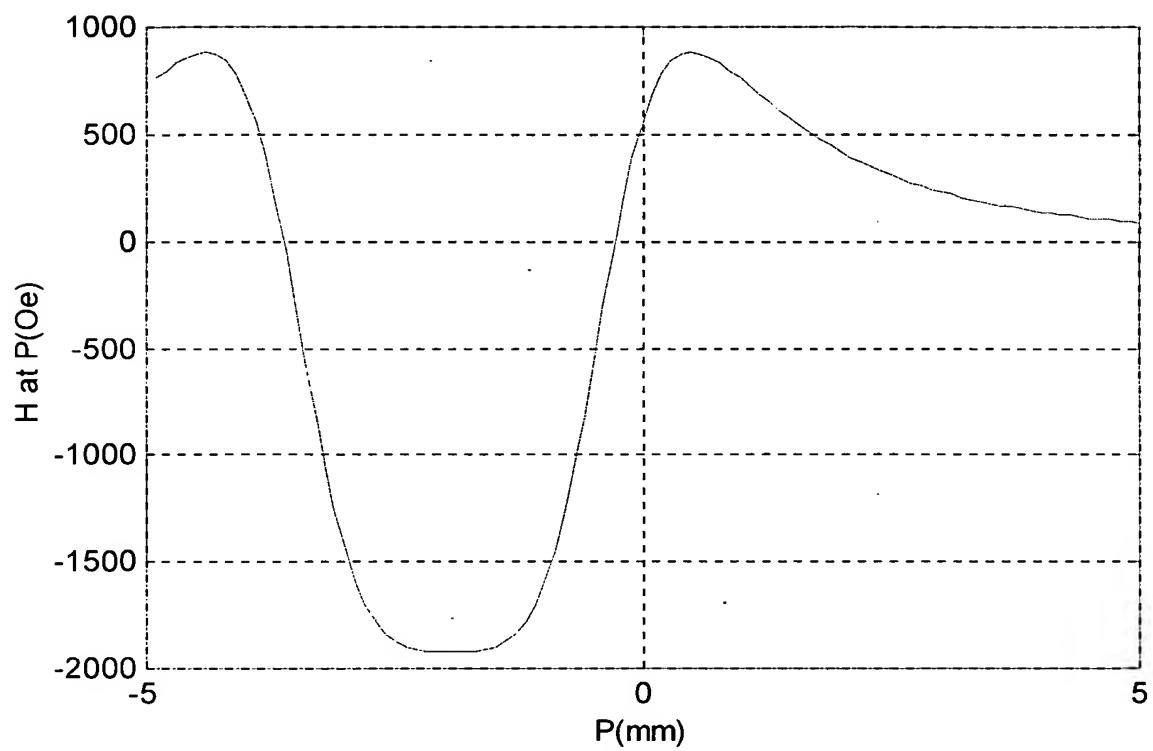


Figure 12. Magnet field distribution for a prior art as described in figure 3.